

[PubMed](#)[Nucleotide](#)[Protein](#)[Genome](#)[Structure](#)[PopSet](#)[Taxonomy](#)[OMIM](#)[Books](#)Search for  Limits[Preview/Index](#)[History](#)[Clipboard](#)[Details](#)[About Entrez](#)[Text Version](#)

Entrez PubMed  
Overview  
Help | FAQ  
Tutorial  
New/Noteworthy  
E-Utilities

PubMed Services  
Journal Browser  
MeSH Browser  
Single Citation Matcher  
Batch Citation Matcher  
Clinical Queries  
LinkOut  
Cubby

Related Resources  
Order Documents  
NLM Gateway  
TOXNET  
Consumer Health  
Clinical Alerts  
ClinicalTrials.gov  
PubMed Central

[Privacy Policy](#)

■ 1: FASEB J 2000 Oct;14(13):2087-96

[Related Articles](#), [Books](#), [LinkOut](#)

Full text article at  
[www.fasebj.org](http://www.fasebj.org)

## VEGF-C and VEGF-D expression in neuroendocrine cells and their receptor, VEGFR-3, in fenestrated blood vessels in human tissues.

Partanen TA, Arola J, Saaristo A, Jussila L, Ora A, Miettinen M, Stacker SA, Achen MG, Alitalo K.

Molecular/Cancer Biology Laboratory and Department of Pathology, Haartman Institute, University of Helsinki, 00014 Helsinki, Finland.

Recently, vascular endothelial growth factor receptor 3 (VEGFR-3) has been shown to provide a specific marker for lymphatic endothelia in certain human tissues. In this study, we have investigated the expression of VEGFR-3 and its ligands VEGF-C and VEGF-D in fetal and adult tissues. VEGFR-3 was consistently detected in the endothelium of lymphatic vessels such as the thoracic duct, but fenestrated capillaries of several organs including the bone marrow, splenic and hepatic sinusoids, kidney glomeruli and endocrine glands also expressed this receptor. VEGF-C and VEGF-D, which bind both VEGFR-2 and VEGFR-3 were expressed in vascular smooth muscle cells. In addition, intense cytoplasmic staining for VEGF-C was observed in neuroendocrine cells such as the alpha cells of the islets of Langerhans, prolactin secreting cells of the anterior pituitary, adrenal medullary cells, and dispersed neuroendocrine cells of the gastrointestinal tract. VEGF-D was observed in the innermost zone of the adrenal cortex and in certain dispersed neuroendocrine cells. These results suggest that VEGF-C and VEGF-D have a paracrine function and perhaps a role in peptide release from secretory granules of certain neuroendocrine cells to surrounding capillaries.

PMID: 11023993 [PubMed - indexed for MEDLINE]

[Write to the Help Desk](#)[NCBI | NLM | NIH](#)[Department of Health & Human Services](#)[Freedom of Information Act | Disclaimer](#)